

On how personal values and sustainability conceptions impact students' sustainability management orientation: evidence from Germany, Indonesia, and the USA

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On how personal values and sustainability conceptions impact students' sustainability management orientation: Evidence from Germany, Indonesia, and the United States

Abstract

Purpose

This study develops and empirically tests a framework on how personal values and sustainability conceptions affect students' sustainability management orientation (SMO). An understanding of this connection gives insight into the question whether students are likely to engage in sustainable business practices in their future work.

Design/methodology/approach

A cross-sectional and comparative research design is employed, using survey data of business students from Germany, Indonesia, and the United States ($N=475$). The proposed mediation models are tested by bootstrap procedures using Hayes's (2013) PROCESS macro for SPSS.

Findings

Self-transcendence values translate into more nuanced sustainability conceptions since individuals with self-transcendence values are more likely to conceptualize sustainability beyond their own (narrow) self-interests. In turn, the stronger individuals' sustainability conceptions, the higher the likelihood that they prefer sustainable management practices in their future professional working field.

Research limitations/implications

Implications arise for researchers to investigate the engagement of future managers with different personal value types in sustainability practices and to gain insights into values and sustainability conceptions as a learning outcome. Limitations of this research—for instance, arising from potential common method bias—are discussed.

Practical implications

The findings point to the need to (re-)design appointment processes for management positions in a way that allows taking into account individuals' personal values and sustainability conceptions. This research may also help firms and higher education institutions to empower their workforce/students to develop more integrated perspectives on sustainability challenges as well as teaching methods that address students' effective learning outcomes, e.g. their values.

Originality/value

The paper offers a new framework and a cross-country perspective on psychological antecedents of individuals' sustainability management orientation as an important prerequisite for responsible behavior in the business context.

Keywords: Sustainability, management orientation, personal values, sustainability conceptions, cross-country study

1. Introduction

Responsible management seen from the perspective of sustainable development includes dealing with the well-being of humankind and the biosphere, from generation to generation and collaborative efforts across all sectors of society. Responsible management aims to achieve sustainable business by influencing its triple bottom line (Elkington, 1997). The idea of sustainability and especially its application to management is a way to manage responsibly between what has been described as the social foundations of human life and the ecological planetary boundaries in order to create a just and safe space for humanity (cf. Rockström *et al.*, 2009; Leach *et al.* 2013). Fuelled by the declaration of the UN Decade of Education for Sustainable Development (2005-2014) and the finalization of the Principles for Responsible Management Education (PRME) in 2007, a vivid debate among policy makers, business leaders, and the academic community has evolved around the question of how individuals can be empowered to deal with the complex and interrelated phenomena associated with a transformation toward sustainability at local, national, and global levels (see, for instance, PRME 10th Anniversary Special Issue in the International Journal of Management Education, edited by Parkes *et al.*, 2017; see also Louw, 2015; Adomßent *et al.*, 2014). Contributors to this debate widely agree that it is not enough to teach students about responsible management. Instead, it is important to enable them to master responsible management (McDonald, 2013).

Given the prominence of the concept of sustainability management, i.e., “the formulation, implementation, and evaluation of both environmental and socioeconomic sustainability-related decisions and actions” (Starik and Kanashiro, 2013, p. 12), in the current debate, there is surprisingly little research on sustainability management orientations (SMO) as a psychological antecedent of sustainable management practices. SMO is defined as individuals’ inclination to direct their attention to management practices which allow the achievement of economic growth through “the demonstration of environmental integrity and social responsiveness” (Louche *et al.*, 2010, p. 97). As sustainability is a highly normative lens to use when making management decisions (Beckmann and Pies, 2008), SMO can be assumed to be strongly influenced by psychological antecedents such as personal values (cf. Alonso-Almeida *et al.*, 2015; Crane and Matten, 2016). So far, only a few contributions in the field address the relationship between people’s values and preferences of sustainability management (Shafer *et al.*, 2007; Adams *et al.*, 2011; Simmons *et al.*, 2013; Lehnert *et al.*, 2016). Moreover, recent research highlights a lack of

conceptual frameworks linking various individual-level antecedents in different socio-cultural settings (Krambia-Kapardis and Zopiatis, 2008). In consequence, Aguinis and Glavas (2012) called for more studies that examine chains of impact (mediation models) and conditions under which certain impacts unfold (moderation models).

This study seeks to respond to this call. It argues that two components—personal values and sustainability conceptions—are key to understand people's preferences for sustainability management better. This research suggests that an individual's sustainability conceptions play a mediating role in the relationship between personal values and SMO. More precisely, it is hypothesized that personal values affect the way how people understand and interpret the idea of sustainability. In turn, these individual sustainability conceptions impact a person's SMO. To ascertain the validity of the proposed model, this study employs a comparative research design, based on survey data from business students in three countries: Germany, Indonesia, and the United States (US). Business students represent an important group to study since they are likely to be confronted with sustainability issues in their future professional roles in the business world, maybe even holding leading positions.

The remainder of this paper is structured as follows: In the next section, the framework identifying the relationships between personal values, sustainability conceptions, and SMO is presented. In this part of the article, the hypotheses are also introduced and grounded in the literature. Next, data collection and analysis methods are reported. Then, the results of the empirical analysis are synthesized. In the following discussion, the theoretical implications for responsible management and practical implications for the selection and training of future leaders are explored. Having also pointed to limitations, the article ends with a short conclusion.

2. Conceptual framework and hypotheses

The conceptual framework is built on three relationships that give insights into how personal values influence SMO, both directly and indirectly via sustainability conceptions: (1) a values-orientation relation, (2) a values-conceptions relation, and (3) a conceptions-orientation relation.

2.1. The influence of personal values on sustainability management orientation

Organizational activities and sense-making with regard to sustainability are formed by the individual mental processes and behavior of the organization's workforce. Research finds evidence

that personal values are the foundation of ethical attitudes, intentions, and behavior (Fritzsche and Oz, 2007; see O'Fallon and Butterfield, 2005, for a review).

The broad field of personal values has been structured in different ways (Parsons, 1956; Allport *et al.*, 1960; Rokeach, 1973; Inglehart *et al.*, 2004). One particularly coherent and well-received approach to measure values has been put forward by Bardi and Schwartz (2003). Schwartz and Bardi (2001, p. 269) define values as “desirable, trans-situational goals, varying in importance, that serve as guiding principles in people’s lives.” Their approach represents ten value types that are aggregated into two dimensions. This paper focuses on the dimension that is described by the two poles of *self-enhancement* and *self-transcendence* (Schwartz, 1994). The former encompasses the pursuit of self-interest, whereas the latter includes the welfare of society and nature.

The Schwartz classification has been applied in some studies in the business ethics discourse (Joyner and Payne, 2002; Hemingway and MacLagan, 2004; Vitell and Hidalgo, 2006; Fisher and Lovell, 2009). These studies suggest that values do not influence socially or environmentally-oriented behavior in a direct manner. However, values have been found to influence beliefs, norms, and orientations. Consequently, they influence behavior indirectly (Dietz *et al.*, 2005). Although these studies do not explicitly discuss the relationship between values and SMO, their findings provide interesting insights into the relationship between personal values and responsible management behavior. For example, Wang and Juslin (2011, p. 251) observe that self-transcendence values, which they call altruistic values (universalism and benevolence values), “make a significant positive contribution to ethical decision-making and CSR. They are associated with higher levels of moral awareness.” Kausch (2013) discovers that self-transcendent individuals have more favorable attitudes toward environmental corporate sustainability and less favorable attitudes toward economic corporate sustainability.

Synthesizing these empirical results, the existing research suggests a positive link between self-transcendence values and preferences for sustainability management practices among students. Therefore, this study suggests that students with values that transcend their self-interest show stronger SMO, leading us to the first hypothesis:

H1. Self-transcendence values are positively linked with SMO.

2.2. The mediating role of sustainability conceptions

In line with the notion that values are guiding principles about what individuals find desirable, they have been found to be involved in an individual's opinions and beliefs and give direction and priorities for certain interpretations and evaluations of reality (Beyer, 1981; Wright and Wright, 2000). Values extend or restrict an individual's cognition by shaping what they see as preferable end-states, thus determining the degree to which something is selectively, holistically, or not understood (Russell, 2001; Campbell, 2007). Against this background, it is argued that individuals' personal values influence their sustainability conceptions.

Sustainability conceptions are defined as the degree to which individuals associate a particular set of economic, socio-cultural, and ecological elements as integral parts of sustainability (cf. Borg *et al.*, 2014). Following Borg *et al.* (2014), it is noted that individuals can link economic (e.g. efficiency, economic growth, technological performance), socio-cultural (e.g. human rights, social security, justice between rich and poor), and ecological elements (e.g. green technologies, protecting ecosystems) with sustainability. Linnenluecke *et al.* (2009) find that organizational subcultures, in particular shared values and beliefs, had a significant influence on how employees understand and conceptualize sustainable management practices. Giddings *et al.* (2002, p. 188) remark that "the existing worldviews of people and organizations flow into their conception of sustainability."

Against this background, it is suggested that self-transcendence values shape the way individuals construct knowledge concerning sustainability and influence interpretations and evaluations of the idea of sustainability. More specifically, the degree to which individuals link economic, socio-cultural, or ecological elements with sustainability should be grounded in self-transcendence values. Those individuals with self-transcendence values are expected to have broader sustainability conceptions since the values these conceptions are built on explicitly transcend the maximization of individual utility emphasizing the welfare of society and nature.

In turn, it is assumed that individuals with broader sustainability conceptions will see the necessity to create value for various stakeholders connected to society and nature, like for instance government, (local) communities, the natural environment, or suppliers and employees (Lydenberg *et al.*, 2010). In other words, broader conceptions encompassing economic, socio-cultural, and ecological elements of sustainable development should make individuals more sensitive for the

long-term economic (e.g. strengthening local and regional economic development), socio-cultural (e.g. fostering inter- and intragenerational justice), and environmental consequences (e.g. protecting the biodiversity of nature) of their strategies and actions (Burmeister and Eilks, 2013) and should facilitate a focus on good governance (e.g. ethical-moral business operations). Accordingly, the framework proposes a relation between sustainability conceptions and SMO. More specifically, it is hypothesized that sustainability conceptions take the role of a mediator between self-transcendence values and SMO.

H2. Sustainability conceptions in terms of economic, socio-cultural, and ecological components mediate the relationship between self-transcendence values and SMO.

2.3. Cross-country validation

To understand how values and SMO relate, this study employs a cross-country approach that captures between-country variances in the model components. This research examines the hypothesized relationships in Germany, Indonesia, and the United States. Yau *et al.* (2007) point to the need for researching company's orientation towards stakeholders in non-western settings. By including Indonesia, the study comprises an important non-western country (see also Oeyono *et al.*, 2011) and addresses the need for more insights from these regions of the world. The three countries were chosen since previous studies found significant differences in terms of socio-economic development, values, and civic entitlements between them (e.g. Hofstede, 2001).

All three countries are the trading block leaders in their respective regional trade organizations (EU, ASEAN, NAFTA; see Table 1). Germany and the US are highly developed countries. High human development index (HDI) values indicate that their populations benefit from a long and healthy life, easy access to knowledge, and a decent standard of living. By contrast, Indonesia showed a comparably modest HDI value and was positioned at rank 110 of 188 countries in 2014 (UNDP, 2015). In comparison to Indonesia, individuals from Germany and the US have large ecological footprints. In consequence, results of the Happy Planet Index indicate that people from Germany and the US use more environmental resources to achieve a long and happy life (Abdallah *et al.*, 2012). More specifically, the Happy Planet Index measures how efficient countries are in using natural resources to achieve life expectancy, wellbeing, and equal distribution of outcomes for their citizens. With regard to cultural value differences, Hofstede (2001) finds significant differences between Germany, Indonesia, and the US on his cultural dimensions. Table

1 provides a comprehensive overview of cultural values and socio-economic indicators of the three countries.

Table 1: Cross-country comparison

	Hofstede's cultural dimensions					Trade organi- zation	HDI (2014)	HPI (2012)	EF (2012)
	IDV	PDI	MAS	UAI	LTO				
Germany	67	35	66	65	83	EU	0.916	29.8 (49 ^{th*})	5.3 (114 ^{th*})
Indonesia	14	78	46	48	62	ASEAN	0.684	35.7 (16 ^{th*})	1.6 (41 ^{st*})
United States	91	40	62	46	26	NAFTA	0.915	20.7 (108 ^{th*})	8.2 (137 ^{th*})

Note: IDV = Individualism versus Collectivism, PDI = Power Distance Index, MAS = Masculinity versus Femininity, UAI = Uncertainty Avoidance Index, LTO = Long-Term versus Short-Term Normative Orientation. HDI = Human Development Index. HPI = Happy Planet Index. EF = Ecological Footprint. * From a total of 140 countries.

Studying the chosen countries appears instructive because, being quite different on a number of relevant dimensions, they put the model to a tough check of external validity. This variation on cultural dimensions ultimately helps to increase representativeness (cf. Seawright and Gerring, 2008). Despite the country differences, this paper suggests a stable pattern of the model relationships, since the mechanism we have introduced pertains to fundamental mental processes.

H3. The hypothesized model holds for Germany, Indonesia, and the United States.

Figure 1 illustrates the conceptual framework. The bottom arrow represents the direct relation between self-transcendence values and SMO. The dashed line represents the mediation effect. In addition, Figure 1 also locates the hypotheses within the conceptual framework.

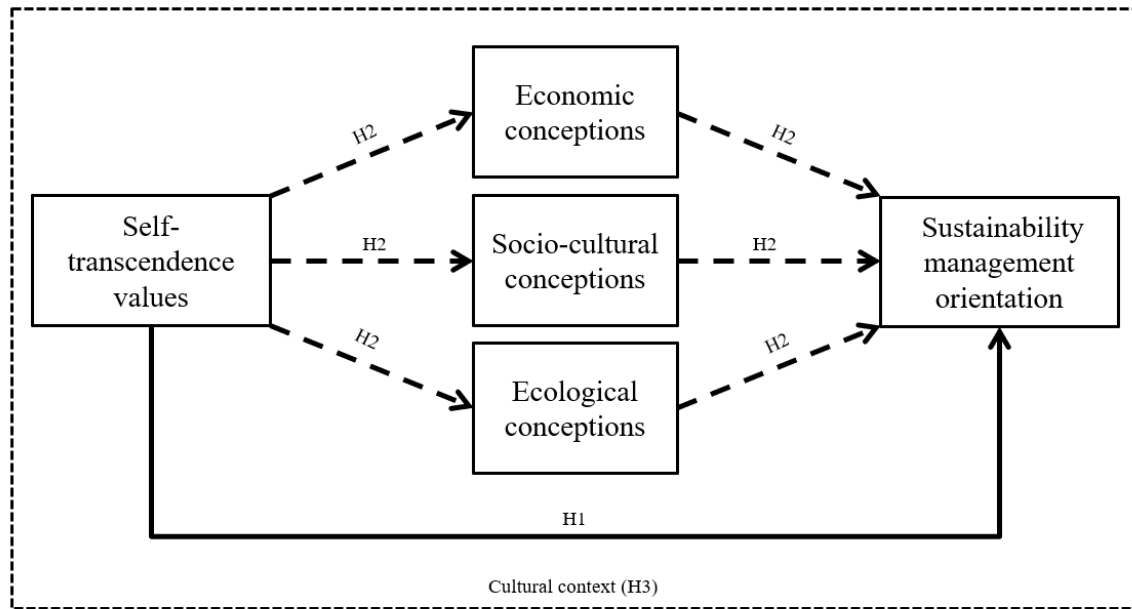


Figure 1: Overview of the conceptual framework for the relationships between self-transcendence values, sustainability conceptions, and SMO.

3. Methods

3.1. Sample and empirical setting

The paper-pencil questionnaire was administered to business students at a German, an Indonesian, and a US-American university. The universities were selected based on, first, general institutional characteristics and, second, specific characteristics of the respective business programs. In terms of general institutional characteristics, the institutions' missions and values and the location of the business school campus were considered. The three schools, which were all based in medium-sized cities or townships at the outskirts of metropolitan areas, addressed sustainability issues in their mission statements, and they engaged in sustainability-related external activities, for instance local and regional development through entrepreneurship education.

The business programs our sample was drawn from were similar regarding their focus, which was on management and entrepreneurship. All curricula included some courses on ethics, diversity, or sustainable business. The German sample was drawn from (early-stage) master-level students, and the samples from Indonesia and the United States consisted of undergraduate students. To sum up, three universities and business programs with similarities regarding their

mission, location, and study contents were selected. Culturally very different countries were chosen to rigorously test the validity of the proposed framework.

Cases with missing data were excluded listwise during the analyses, resulting in a sample of $N = 475$ cases for the final mediation analysis ($n_{\text{Germany}} = 150$, $n_{\text{Indonesia}} = 191$, $n_{\text{United States}} = 134$). In total, the sample consisted of 205 females and 270 males. The data was collected between April and November 2015. No course credit or any other incentive was offered for respondents' participation. Age ranged from 18 to 36 ($M = 21.9$, $SD = 2.63$). The questionnaire used for data collection included well-established as well as new measures. The respondents were asked about their SMO, personal values, and their sustainability conceptions. Moreover, the questionnaire included questions concerning respondents' demographics and study backgrounds. The questionnaire was pre-tested qualitatively with think-aloud technique and quantitatively ($N = 37$). The results of the pretests showed that no major questionnaire modifications were necessary. The questionnaires were issued in German to the German sample, in Bahasa Indonesia to the Indonesian sample, and in English to the US-American sample. Bilingual native speakers translated all versions of the instrument.

3.2. Measures

To measure participants' SMO, they were asked to take the role of a manager and to state which managerial practices they would adopt or not, using a 7-point scale indicating their inclination to engage in the described behavior. From a total of 28 items, many of which were previously used by Wang and Juslin (2011) and Kausch (2013), the items were selected along environmental, social, and governance (ESG) dimensions (cf. Principles for Responsible Investment, 2018; see also Velte, 2017) and considering various aspects related to local communities, employees, suppliers, governance, the environment, and customers (cf. Lydenberg *et al.*, 2010, p. 19). The final version of the scale (see Table 4 in the appendix) comprised eleven items and showed a good degree of internal consistency ($\alpha = .839$).

Participants' *personal values* were assessed using a shortened version of the Schwartz Value Inventory (SVI) from the World Values Survey, consisting of ten statements. In this shortened version, each item corresponded to one of the ten Schwartz values (Held *et al.*, 2009). A fictional person was described by the ten statements. Then, the respondents were asked to indicate for each description to which degree the described person is similar to themselves by using the

answer categories “not at all like me” (coded as 1), “not like me” (coded as 2), “somewhat like me” (coded as 3), “a little like me” (coded as 4), “like me” (coded as 5), and “very much like me” (coded as 6). For the analysis, the score of the value category of self-transcendence is used that includes the value types of universalism (“Looking after the environment is important to this person; to care for nature”) and benevolence (“It is important to this person to help the people nearby; to care for their well-being”).

Sustainability conceptions were measured using a scale developed by Sundermann *et al.* (in press). The scale consisted of 24 items designed to capture a broad variety of potential facets of individuals' conceptions ranging from economic, social and cultural to ecological ones. To analyze the factor structure, a principal factor analysis was performed on the 24 items with promax oblique rotation. All items with factor loadings over 0.4 were considered (Stevens, 2012). With the cut-off set at 0.4, one item out of 24 did not load on any factor. One item loaded on two factors almost equally strongly and was thus not considered. A Kaiser-Meyer-Olkin value of 0.891 verified the sampling adequacy for the analysis (Hutcheson and Sofroniou, 1999, p. 225).

The factors explained 58.09% of the variance. The items that clustered on the same factor suggested that factor 1 represented ecological conceptions ($\alpha = 0.855$), factor 2 socio-cultural elements ($\alpha = 0.859$), and factor 3 economic elements ($\alpha = 0.689$) (see also Table 5 in the appendix). For each factor separate indices were built by averaging the factor items. In addition, several control variables were considered, such as gender (male = 1; female = 0), age (in years), political orientation (1 = left, 10 = right), religiosity (1 = not religious at all, 10 = very religious), and life satisfaction (1 = very dissatisfied, 10 = very satisfied).

3.3. Data analysis

The analysis was conducted in SPSS using the PROCESS macro (Hayes, 2013, p. 85). The proposed mediation models were tested applying a bootstrap procedure (e.g. Efron and Tibshirani, 1993). Bias-corrected 95%-confidence intervals were obtained using 10,000 bootstrap (re)samples. An *F*-test was used to compare the full model against a base model excluding the mediators to test whether integrating sustainability conceptions significantly increased the variance explained by the model.

4. Results

4.1. Descriptive statistics

Table 2 provides descriptive statistics on the dependent, independent, and control variables. Lowest self-transcendence scores were observed in the German sample ($M = 3.55$; $SD = 1.03$). The means of the Indonesian sample ($M = 4.36$, $SD = 0.96$) and the US-American sample ($M = 4.41$; $SD = 0.85$) were higher. SMO was also lowest in the German sample ($M = 4.53$; $SD = 0.79$) and highest in the Indonesian sample ($M = 5.63$; $SD = 0.72$). Table 6 (see Appendix) provides correlations between the variables.

Table 2: Mean values and standard deviations (in parentheses)

	Total (<i>N</i> = 475)	Germany (<i>n</i> = 150)	Indonesia (<i>n</i> = 191)	US (<i>n</i> = 134)
Self-transcendence values	4.12 (1.03)	3.55 (1.03)	4.36 (0.96)	4.41 (0.85)
Economic conceptions	5.60 (1.00)	4.87 (1.02)	6.00 (0.73)	5.85 (0.85)
Socio-cultural conceptions	4.89 (1.14)	4.19 (1.07)	5.57 (0.79)	4.69 (1.11)
Ecological conceptions	5.80 (0.84)	6.07 (0.77)	5.75 (0.74)	5.55 (0.96)
Sustainability management orientation	5.18 (0.88)	4.53 (0.79)	5.63 (0.72)	5.29 (0.73)
Political orientation	6.00 (1.84)	4.93 (1.29)	6.96 (1.58)	5.84 (2.01)
Religiosity	5.32 (2.92)	3.13 (2.22)	7.35 (1.99)	4.88 (2.77)
Life satisfaction	7.71 (1.65)	7.53 (1.60)	7.60 (1.78)	8.06 (1.45)
Male	0.57 (0.50)	0.43 (0.50)	0.64 (0.48)	0.62 (0.49)
Age	21.9 (2.63)	25.2 (2.29)	20.6 (0.75)	20.1 (0.48)

4.2. Regression analysis

Considering the entire sample (see Table 3), self-transcendence positively influenced SMO ($b = .139$, $\beta = .163$, $SE = .032$, $p < .001$). This finding holds for all three countries (see Figure 2). Thus, Hypothesis 1 can be confirmed.

Empirical support was also found for the mediation hypothesis, i.e., the mediating role of individuals' sustainability conceptions in the relationship between self-transcendence values and SMO. More specifically, economic conceptions were found to mediate the relationship between self-transcendence values and SMO (Indirect effect: $b = .023$, $SE = .009$, $CI = .008$ to $.045$, $p_{\text{Sobel}} = .005$). Further, a significant indirect effect of self-transcendence on SMO via socio-cultural conceptions (Indirect effect: $b = .042$, $SE = .014$, $CI = .018$ to $.073$, $p_{\text{Sobel}} < .001$) was found. Also, ecological conceptions were found to mediate the relationship between self-transcendence values and SMO (Indirect effect: $b = .087$, $SE = .016$, $CI = .058$ to $.123$, $p_{\text{Sobel}} < .001$) (see Table 7 in the appendix). Therefore, Hypothesis 2 is confirmed.

Table 3: Regression results (unstandardized coefficients)

<i>Dependent variables</i>	<i>Sustainability conceptions</i>			<i>Sustainability management orientation</i>	
	Economic	Socio-cultural	Ecological	Base model	Full model
<i>Independent variable</i>					
Self-transcendence values	.168**	.317**	.292**	.291**	.139**
<i>Mediators</i>					
Economic conceptions	-	-	-	-	.136**
Socio-cultural conceptions	-	-	-	-	.132**
Ecological conceptions	-	-	-	-	.297**
<i>Country dummies</i>					
Germany	Reference	Reference	Reference	Reference	Reference
Indonesia	.513**	1.157**	-.512**	1.028**	.957**
United States	.318	.241	-.840**	.659**	.833**

<i>Controls</i>					
Male	.232**	-.128	-.172*	-.266**	-.230**
Age	-.083**	.004	-.025	.028	.046*
Political orientation	.024	.012	-.051*	.008	.018
Religiosity	.000	-.002	-.005	.000	.002
Life satisfaction	.066**	.053*	.059**	.067**	.034*
Constant	5.637**	2.568**	5.571**	2.362**	-.396
R^2	.307	.357	.226	.443	.583
MSE	.701	.856	.558	.437	.329
F	25.86**	32.29**	17.00**	46.26**	58.84**

Note: * $p < .05$; ** $p < .01$.

The results of individual analyses for each sub-sample will be summarized in the following paragraph. Based on the entire sample, the result of an F -test showed that adding sustainability conceptions to the model as a mediator significantly increased the variance explained in individuals' SMO ($R^2_{\text{Full Model}} = .583$, $R^2_{\text{Base Model}} = .443$, $F_{(3, 475)} = 51.81$, $p < .001$). In the Indonesian sample, the effect of self-transcendence values was fully mediated by people's sustainability conceptions, underlining the importance of this mediator.

Taking a closer look at the three sub-samples, several differences are observed in the levels of the examined constructs (see Table 2 for mean values and Table 8 in the appendix for results of Kruskal-Wallis tests), but only a few differences regarding the proposed relations between the constructs. As Figure 2 shows, five of the seven hypothesized relationships were identified in all three sub-samples. While in the Indonesian and the German sample all proposed effects turned out to be significant, with some marginally significant results in the German sample, for the US-American sample two of the hypothesized relations could not be found. More specifically, no influence of self-transcendence on economic sustainability conceptions and no effect of socio-cultural conceptions on SMO were identified. R^2 ranged from 0.375 in the US sample and 0.384 in the German sample to 0.624 in the Indonesian sample. In summary, the results mostly support Hypothesis 3, which posited that the research model holds for Germany, Indonesia, and the United States.

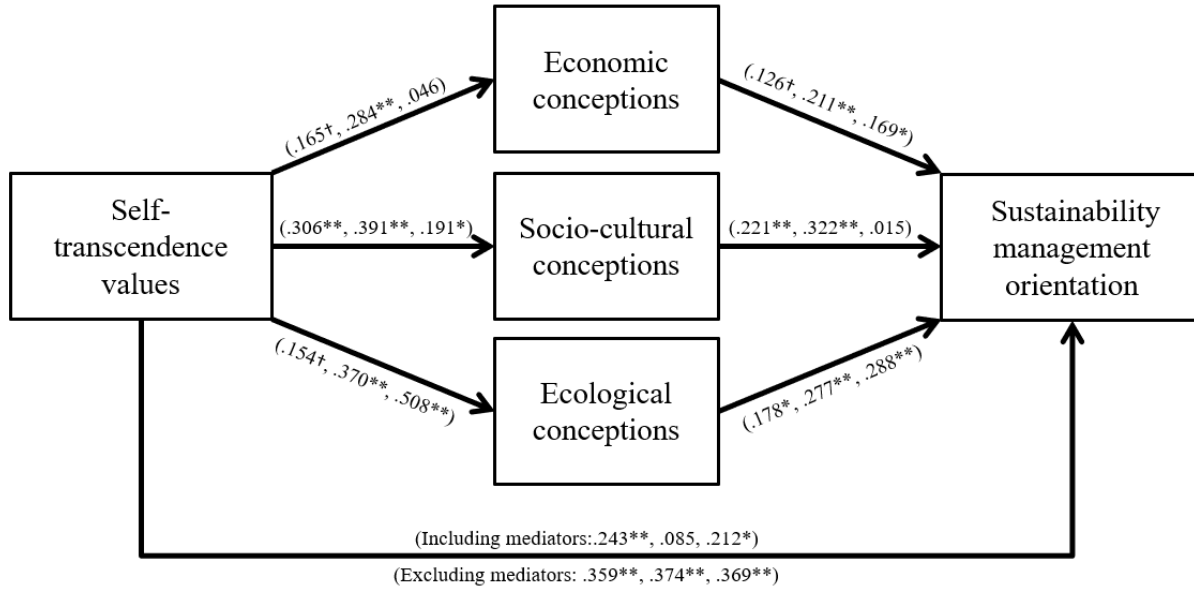


Figure 2: Standardized regression coefficients for the German, Indonesian, and US sub-samples ($^{\dagger}p < .10$, $*p < .05$, $**p < .01$).

5. Discussion and implications

5.1. Findings

The present study gives insight into business students' antecedents of SMO in three countries. Although research on sustainable activities of firms is in the phase of mainstreaming, Wang *et al.* (2016) highlight in their review that the antecedents of sustainable practices are still unclear. In the framework put forward in this paper, it is shown that students' SMO is related to personal self-transcendence values. An individual's sustainability conceptions mediate this relationship. Empirical evidence for the hypothesized model is found. More specifically, these findings highlight the importance of sustainability conceptions by showing that the more students interpret certain aspects as integral parts of sustainability, the stronger their orientation towards sustainable management practices. All three dimensions of sustainability (economic, socio-cultural, and ecological) have been found to have a positive effect on SMO. In this regard, these results extend findings of previous studies, which either did not specifically address the relationship between self-transcendence values and the economic dimension of sustainability (Hanson-Rasmussen and Lauver, 2018) or provided mixed results concerning the association of these constructs (Wang and Juslin, 2011; Kausch, 2013). We show that having self-transcendence values does not necessarily

contradict conceptualizing aspects such as economic growth, efficiency, and technological progress as integral parts of sustainability. These economic conceptions, in turn, have a positive impact on individuals' SMO.

Notably, the study has shown that more pronounced self-transcendence values and sustainability conceptions that comprise a variety of associations are related to stronger SMO, but with some differences with respect to the cultural background of the individuals. Hanson-Rasmussen and Lauver (2018) report, for example, that globally business students are interested in environmental sustainability. Contrary to the expectations derived from other studies, in the present research, students from Indonesia and the United States show more nuanced sustainability conceptions than those from the German sample. Although this research finds differences in the three model components, the mechanism has been confirmed in Germany, Indonesia, and the US. This implies that the basic mechanism holds true irrespective of cultural contingencies. In doing so, this paper identifies antecedents of SMO which might contribute to dealing with sustainability management challenges in different countries.

Furthermore, we find that the German sample has the lowest self-transcendence values and also the lowest SMO. Besides values, the high uncertainty avoidance orientation among individuals from Germany might play a role in explaining the low degree of SMO in this sample. According to Hofstede (2001), cultures with high uncertainty avoidance avoid uncertain and unknown situations. The author (2001, p. 148) notes that people in these cultures “look for structure in their organizations, institutions and relationships, which makes events clearly interpretable and predictable.” A strong SMO is rare and its consequences are thus not very well-known. Therefore, a strong SMO might be seen as an unfamiliar risk for a company. Since individuals with higher levels of uncertainty avoidance shun situations that are not predictable, they will probably more frequently show a lower willingness to enter into such unknown and unfamiliar ventures.

The strong collectivism and long-term orientation could have affected the strong SMO in Indonesia. If individuals focus on cooperation and group harmony and take into account long-term consequences of their actions taken today, they will probably develop long-term strategies to achieve their aspirations (Ashkanasy *et al.*, 2004; Parboteeah *et al.*, 2012). Hörisch *et al.* (2014) argue that sustainability has to be a core value to comprehensively include durability and environmental concern in sustainability management. The study contributes to this view in showing

that values and nuanced sustainability conceptions enhance students' SMO. Hence, amplifying the conceptions of business students could be a way to create mutual interests and benefits for all stakeholders.

5.2. Implications

Already about 30 years ago, Bunge (1989, p. 393) concluded that “if the survival of humankind is at risk because some of us—mainly our leaders and habit makers—have espoused the wrong values and consequently the wrong morals [...] we must transvaluate the dominant value system.” Against this background, it is crucial to further investigate the role of self-transcendence values in responsible management.

Future research could gain valuable insights into teaching and learning in business ethics and values as a learning outcome by including assessments of curriculum and teaching approaches as control variables. This study finds similarities and differences in sustainability conceptions and SMO among students within a university and across countries. Future investigations could extend the study to see whether findings are also applicable to other countries and other universities, as cross-cultural results on responsible and sustainable business practices remain unclear (Ho, 2010). In similar vein, future research might further enquire into the conditions under which responsible management education is likely to contribute to the achievement of the Sustainable Development Goals (cf. Weybrecht, 2017).

Implications arise for researchers to investigate the engagement of present managers with different personal value types in sustainability practices beyond only satisfying the most salient stakeholders. This study also reveals the need for further investigations at the organizational level and with actual managers to find out if shared self-transcendence values in an organization and growing SMO translate into corresponding managerial behavior. As Peters and Waterman (1982) have already stated, superior performance in responsible management also arises from well-defined sets of shared values in an organization.

Moreover, this study has practical implications for teaching approaches in higher education. Previous research has stated that values are relatively stable, but, through new constructivist teaching approaches, conceptual change and even value change seems accessible. For instance, Geiger *et al.* (submitted) showed that a mindfulness intervention is linked to decreasing material values in students and at the same time increases their subjective well-being. This may require the

integration of unusual educational methods such as contemplative practices, service learning or storytelling activities into the teaching of responsible management (cf. Laasch and Conaway, 2015; see also Laasch, 2014). Education for sustainability has been identified as a key to more responsible and sustainable business practices (Lourenço, 2013; Hesselbarth and Schaltegger, 2014) and there have been calls for a stronger integration of all dimensions of sustainability in university curricula in order to enable students to develop more nuanced and integrated sustainability conceptions (Brito *et al.*, 2018). This research points to the relevance of sustainability conceptions as important antecedents of SMO. To enhance sustainability competencies in business students, for instance SMO, as one facet of system thinking competence, approaches like values-based teaching and leadership development (May *et al.*, 2014; Arce and Gentile, 2015; Gentile, 2017) or transgressive teaching (Lotz-Sisitka *et al.*, 2015) need to be considered. Moreover, students' perspectives on teaching concepts shall play a more important role in curriculum development (Warwick *et al.*, 2017).

In line with Bunge's (1989) call for a change in leaders' value systems, assessment and appointment processes for management positions should be (re-)designed in a way that allows taking into account candidates' personal values. In doing so, individuals can be chosen who are more likely to make sustainable management decisions (Holtbrügge *et al.*, 2015). Such assessment could, for instance, employ the "value knowledge grid method," which is a tool to analyze value knowledge in organizations (Meynhardt, 2004). The value knowledge grid is a method to identify individuals' and organizations' value knowledge (Meynhardt, 2004, p. 231). Management appointment processes should also take account of a potential self-selection issue, whereby individuals with self-transcendence values might be less likely to seek management positions than their colleagues with more pronounced self-enhancement values. One relatively simple suggestion that can be made on the basis of the present research is that leadership positions should be advertised and described in a way that appeals to self-transcendence individuals (Fritzsche and Oz, 2007).

The implications are also interesting for firms that seek to empower their workforce to develop more nuanced and integrated sustainability conceptions to enhance their commitment to sustainability. In line with Hartman and Werhane's (2010) findings concerning management education at business schools, it is argued that in order to create an enduring change in people's sustainability conceptions, their attitudes, and sustainability-related behaviors, firms need to make

sure to expose their employees and leaders to sustainability topics continuously. However, the overall lesson is that offering individuals occasions to reflect upon their implicit and explicit assumptions about sustainability is very important, and this paper shows that these assumptions impact individuals' SMO.

5.3. Limitations

This section addresses limitations regarding (1) common method bias, (2) the sample structure, and (3) cultural setting bias. To begin with, all variables in this cross-sectional study were measured with the same survey instrument. Therefore, the potential for common method bias cannot be discounted. However, common method bias is not expected to be a significant problem in this study, as several strategies to reduce this bias were employed: First, following Podsakoff *et al.*'s (2003) advice, full anonymity was ensured to the respondents, and they were told that there were no "right" or "wrong" answers. Second, the measurement of the independent and dependent variables was psychologically separated by placing them on different pages of the questionnaire and by including introductory paragraphs to separate the item batteries and "prime" respondents for the respective questions. Third, to avoid monotonic response patterns, two item batteries with different scale formats (ipsative measures), which are not part of the investigation, were introduced between the dependent variable construct and the independent variable constructs. Fourth, we used questionnaire items that were clear, precise, and easy to understand for the respondents. To check the validity of the survey instruments and the adequacy of the survey length, a quantitative and a qualitative pretest were employed. Fifth, we used a relatively complex model. Thus, it can be proven that variance in the response pattern exists. Finally, Harman's (1976) single-factor test was conducted to examine whether a single factor could explain the majority of the variance. All items of the independent variable, the mediator, and the dependent variable were entered into an unrotated principal component analysis. It was found that there were twelve factors with eigenvalues greater one which accounted for 61.8% of the total variance. The largest single factor only explained 22.7% of the variance. In conclusion, it seems that common method bias was not a serious concern in the study. Nonetheless, future research could focus on longitudinal studies to avoid some of the shortcomings of cross-sectional research.

Second, another limitation concerns the sample. While it might be argued that using student samples is not recommendable in addressing research questions in the area of management, this study argues that investigating into the values and conceptions of future decision-makers makes

sense since this generation will take various responsibilities in years to come. Furthermore, business students are interesting as a sample because previous research has shown that their sustainability conceptions differ from those of students from other disciplines (e.g. Sharma and Kelly, 2014; Zeegers and Clark, 2014). Moreover, they are more likely to be employed in a business context than students enrolled other majors.

Third, a limitation lies in the study design, which is based on concepts developed in western cultural settings. Some terms might be understood differently in Indonesia. However, the instrument comprised very clear and precise items and bilingual speakers translated the questionnaire. Furthermore, the Schwartz values instrument is used which is highly valid and has often been employed in cross-country research. Moreover, the differences observed in the study with regard to mean values might partially stem from cultural differences in response behavior, as analyzed by Harzing (2006). Yet, since the focus of the research was not on the comparison of mean values, but on analyzing the validity of the research framework in terms of proposed relations between the constructs, cultural response biases should not represent a serious threat to the results, as they can be expected to affect all constructs in a similar way. This study may also face limitations regarding the transferability of the findings to other cultural and institutional contexts since we carried out the study in only three countries. However, owing to the comparably big (especially cultural) differences between the three examined countries, the results are expected to be rather robust, i.e., they might also hold in other countries. Nevertheless, carrying out similar studies in other countries and at other institutions would further strengthen the external validity of the findings.

6. Conclusion

Sustainability is one of the major challenges of the Anthropocene. For the successful implementation of sustainability and responsible management in business, government, and society, individuals who assume responsibility for the necessary change processes are required. This research shows that individual characteristics, in the case of this study personal values, shape SMO. Individuals' sustainability conceptions mediate the effect. Future research should further examine the role of SMO for responsible management. May the discovery of the important role of sustainability conceptions open a way to future conceptual and empirical research including this construct.

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Appendix

Table 4: Items of the SMO scale

Item	ESG dimension
Sustainable use of natural resources	Environmental
Cooperation with environmental organizations	Environmental
Product safety	Environmental
Strengthening local and regional economic development	Social (external)
Relationships with the social environment and local communities	Social (external)
Cooperation with organizations serving civil society	Social (external)
Cooperation with schools, universities and institutions	Social (external)
Taking responsibility for employees	Social (internal)
Company health policy / Safety at work	Social (internal)
Ethical-moral business operations	Governance
Controlling suppliers relating to ethical standards	Governance

Cronbach's $\alpha = .839$.

Table 5: Pattern matrix (Sustainability conceptions)

Items	Factor loadings		
	1	2	3
Conservation of natural resources	.857		
Protecting ecosystems for future generations	.775		
Green technologies	.701		
Environmental program	.642		
Relationship between the ecological, economic, and social	.638		
Responsible behavior	.636		
Durability/longevity	.590		
Fair trade products and services	.429	.411	
Societal learning process			
Human rights		.852	
Justice between developed and developing countries		.769	
Social security		.754	
Justice between rich and poor		.680	
Protection of different cultures in the world		.674	
Participation of all people in decision-making processes		.459	
Traditional knowledge		.443	
Economic growth			.792
Efficiency			.646
Technological progress			.545
Cronbach's α	.855	.859	.689

Note: Principal factor analysis, Promax rotation with Kaiser normalization, rotation converged in six iterations. Only factor loadings > .4 are displayed. A fourth factor comprising three items related to skepticism is not displayed, since we do not seek to analyze this facet of individuals' conceptions.

Table 6: Correlations (Pearson's r)

	1	2	3	4	5	6	7	8	9
(1) Self-transcendence values	1								
(2) Economic conceptions	.309	1							
(3) Socio-cultural conceptions	.403	.489	1						
(4) Ecological conceptions	.253	.028	.287	1					
(5) Sustainability management orientation	.510	.474	.587	.328	1				
(6) Political orientation	.007	.244	.225	-.194	.213	1			
(7) Religiosity	.283	.304	.361	-.044	.374	.381	1		
(8) Life satisfaction	.096	.154	.093	.102	.173	.114	.119	1	
(9) Male	-.077	.167	-.010	-.208	-.094	.142	.028	-.041	1
(10) Age	-.276	-.467	-.320	.178	-.393	-.318	-.420	-.104	-.103

Note: Correlations significant at a level of $p < .05$ displayed in bold, $N = 475$.

Table 7: Indirect effects of self-transcendence on SMO

Mediator	Effect	Boot SE	Boot LLCI	Boot ULCI
Total	.151	.023	.110	.201
Economic conceptions	.023	.009	.008	.045
Socio-cultural conceptions	.042	.014	.018	.073
Ecological conceptions	.087	.016	.058	.123

Table 8: Comparison of central tendencies across countries (Kruskal-Wallis tests)

	Self-transcendence values	Economic conceptions	Socio-cultural conceptions	Ecological conceptions	Sustainability management orientation
χ^2	60.8	118.6	149.5	32.4	135.8

Note: All results significant at a level of $p < .001$, $df = 2$, $N = 475$.